

Chapter – 1
Introduction

CHAPTER – I

INTRODUCTION

Education is not the amount of information that is put into your brain and remains there undigested, all your life. We must have life building, man making, character building, assimilating fine ideas and making them your life and character, you have more education than any man who has got by heart a whole library.

Swami Vivekanand

The task of building an enlightened, strong and prosperous nation rests on the shoulders of its children who are to be cherished, nurtured and developed with tenderness and care, education has always played this important role and has thereby emerged as a natural characteristic of human societies. It has contributed to the shaping of the destinies of societies in all the phases of their development and has itself never ceased to develop. It has been the torch bearer of humanity's most noble ideals. In this sense, as an agent for social change, education necessarily reflects its main ethos, aspirations and concerns. Hence education is a life long process.

“Language is a city to building of which every human being brought a stone”.

R.W. Emerson

1.1 LANGUAGE :

Language learning at the primary stage is crucial to not only meaningful learning in all the subject areas but also to the learner's emotional, cognitive and social development. New entrants with poor language background remain poor

learners and poorer performers in all areas unless specially helped in language skills. Failure to teach language skills properly and adequately in the early years will lead to difficulties in learning subsequently through the upper primary, the secondary stages. Language education has the greater potential as a means to develop, progressively through various stages, attitudes and values related to all the core components by incorporating appropriate themes and adopting suitable teaching learning strategies.

Language education must aim at encouraging independent thinking, free and effective expression of opinions and logical interpretation of the present and the past events. It must motivate learners to say things their way, nurture their natural creativity and imagination and thus make them realize the basic difference between their verbal language and the language of mathematics. These are the reasons why learning of language ought to find a central place in the total educational process.

In this context the following focal points merit serious consideration.

Despite general acceptance of the central importance of language education in principle, practical effort for improving it has yet to be made at all levels in the country.

- The oral aspect of language has to be duly emphasized in language education and oral examination in language must be made an integral part of the evaluation process.
- Emphasis will have to shift from the teaching of text books to extensive general reading and it would need continuous guidance and monitoring.

- Due stress is to be laid, in all language education programmes, on the ability to use the language in speech and in writing for academic purposes, at work place and in community in general.

Even about four decades after the formulation of “Three Language Formula”, it is yet to be effectively implemented in true spirit. Despite all the changes in the socio economic scenario, market pressures and the behaviour pattern of the Indian youth the three language formula still remains relevant. Under this Formula :

The first language to be studied must be the mother tongue or the regional language. **The second language** – (i) In Hindi speaking states will be some other modern Indian language or english, and (ii) In non Hindi speaking states will be Hindi or English. **The Third Language** – (i) In Hindi speaking states will be English or a modern Indian language and studies as the second language & (ii) In non Hindi speaking states will be English or a modern Indian language not studied as the second language. Since the basic objective behind the three language formula was the continues to be national unity and facile intra state, inter state and international communication, adherence to it must be ensured by the central as well as state / Union territory government.

1.2 FOUR LITERACY SKILLS

The major language skills as identified by (1) Audiolingualism (q.v.); listening (understanding the spoken word); speaking (2) Reading (Understanding the written word) writing. According audio lingual theory Listening & Reading are passive or receptive skills and speaking and writing productive skills. Listening, Speaking, Reading and writing are the basic skills of language arts. Languages

plays a very important role. The basic aim of teaching English, it is believed, to enable the student to develop skills listening, speaking, reading and writing English. Here in the present study we emphasize on reading skill.

Francis Bacon, in the essay "Of Studies" writes.

Reading maketh a fullman. Conference maketh a ready man; Writing maketh an exact man; Reading, Intelligent Conversation and attention and comprehension are seen for centuries as preconditions of refined man.

A meaningful interpretation of words and sentences is known as reading. The overall aim of teaching reading is to enable the child to read with comprehension and enjoy reading various kinds of instructional material.

1.3 DEFINITION OF READING :

Prior to 1917, reading was defined as the ability to transform printed words into oral responses. In the present age of explosion of knowledge and information, accelerated reading with comprehension has almost become sinequanon with an efficient man.

Reading is essentially a language related process of communication – unlike the oral communication, which moves from the speaker to the hearer. In the case of reading, the communication is from the writer to the reader. Since speech is evanescent, writing provides for displaced communication. In modern times, voice recording permits of displaced communication but this being essentially a speaker to hearer communication qualitatively different from writing and reading. Reading presupposes oral mastering of sounds and speech events in a language. Even if one is acquainted with the phonemic and graphemic inventories in a language in

isolation without the knowledge of phonemic graphemic fit one is greatly handicapped in reading.

“Reading is to the mind, what exercise is to the body”

Addison

Reading plays an important role in school education. It forms the basic tool for achieving proficiency in all other school subjects. The success of any student in the school is largely dependent on the extent to which his reading skills have been developed. Researches in the field of reading have been done on reading habits, reading readiness, reading speed and comprehension, reading interests and methods of teaching reading. Reading consists of two aspects : word identification and comprehension.

1.4 (A) WORD IDENTIFICATION

Word Identification is defined as the ability to identify or recognize words well.

(B) READING COMPREHENSION

Comprehension is the ultimate goal of all readings. It carries the understanding of a word or a phrase beyond recognition to the understanding of the meaning intended by the author.

Comprehension in reading is generally defined as getting meaning from print. The word comprehension means literally holding together. Thus reading comprehension means that the reader holds together in his mind the elements of meaning coded by a writer into print. Comprehension is but one of several necessary skills that make up the process of reading. It involves determining the

meaning of words in author's language setting and at the same time linking the meaning into larger language patterns and fusing them to a chain of related ideas usually those that author has in mind. Whether one is reading for knowledge or for meaning is central. The degree of understanding depends on many factors such as the nature of the reading task, the clarity of expression, the readers purpose, interest and his back ground and past experience. Comprehension takes place on three level : -

(i) Literal Meaning

(ii) Interpretation of Meaning

(iii) Evaluation of Meaning

(i) **Literal Meaning** : Reproduction of authors words and translation of his thoughts into one's own words. He understands the main idea in a passage and follows the sequence of idea expressed in it.

(ii) **Interpretation Meaning** : Reading critically to recognize authors motives intention and purpose, interpret his thoughts, passes judgment on his statement, assesses the relevance of the material read, summarizes the passage. He establishes a purpose for reading, draw and supports conduction and makes interferences or predictions. This is also known as critical reading.

(iii) **Evaluation of Meaning** : Evaluation involves critical reactions to the material read, which may include many intellectual processes such as discriminating, imagining, analyzing, judging and problem solving. It also involves deriving implications speculating about consequences and drawing generalization not stated by the author i.e. "Reading beyond the limit."

Reading is a complex activity. Reading has been defined as an activity which involves the comprehension and interpretation of ideas symbolized or written or printed page.

Reading is a complex process of comprehension and evaluation involving cognitive operations like problem solving and decision-making. Hence, all aspects of reading skill need to be taught to our students with utmost care. **Reading Comprehension is important in school achievement.** Reading is the process, which enables the readers to understand the phonological lexical and sentence structures of the written language and coordinate these featural information with the goal of extracting meaning of the text. Apparently, deficit in these skills give rise to difficulties in reading that are experienced by the disabled readers. At a time of lively appraisal of educational development in India, when many changes are being witnessed in organization, curricula and teaching techniques it is pertinent to seek systematic and upto date information on the significant correlates of pupils achievement.

Many factors which are responsible for affecting the academic achievement such as pupil's, socio economic, back ground, intelligence, language as Medium of instruction, various personality traits of students etc.

These factors are of utmost theoretical and practical importance in developing curricula and designing educational programmes to suit the needs of pupils with varied backgrounds.

1.5 READING ACHIEVEMENT IN RELATION TO PASS PROCESS

In reading achievement attempts have been made to study reading behaviour in terms of proficiency in specific cognitive process. The process perspective followed four different but interrelated cognitive processes, namely **planning, attention, simultaneous and successive (PASS) processes**, which were originally suggested by Luria (1966, 1970, 1980) and later embodied within the PASS model (Das, Kirby & Jarman 1975, 1979, Nagberia and Das, 1988, 1990).

Attention refers to the waking state of the cortex and is required for optimal cortical activity. Attention is carried out in the first block of the brain.

The second block which included the occipital temporal and parietal lobes of the cortex is responsible for carrying out the process of coding that refers to storage and processing of information. Two different modes of coding namely, simultaneous and successive, commonly underlie all mental activities.

Simultaneous processing involves organization of information into a quasi spatial and relational manner, where as successive processing involves organization of information into a temporarily based sequential manner.

These two processes of coding form the basis for the operation of the third process, that is planning.

Planning, the central concept of the PASS model, is the function of the third block of the brain. It involves activities like searching, goal setting, generation, selection and execution of plans or strategies, performance monitoring, evaluating

the course of an action and decision making. Hence it determines the nature of coding. Planning is a higher order cognitive process and is considered to be the essence of human intelligence (DAS 1984).

Studies reveal that attention plays an important role in reading (Ackerman, Dykman & Gardner, 1990, Copeland and Reiner, 1984; Das, 1988, Mahapatra, 1990). Studies in reading literature highlight the relationship between planning and reading achievement of children and such research attempts are still meager in India (Das, Bisanz and Manicini, 1984;)

Subrahmanyam (1981) studied the correlates of reading achievement of primary school children and found that reading achievement in Telgu was positively related to the general mental ability, visual ability and speech habits of children.

1.6 RELATION BETWEEN READING COMPREHENSION AND MATHEMATICS

There is no difference of opinion on the need for teaching of mathematics as a part of general education. As a matter of fact, for a long time education was equated with acquiring the 3R's **Reading, Writing and Arithmetic**. Even in the broader concept of education which we have today, the 3R's form is an important part of education. Our Society is moving into a technological era, mere acquisition of arithmetical skills is not sufficient; we need people with sound mathematical skills. The study of mathematics has become indispensable in our life, because of its wide ranging applications in the present technological society. The present technological society requires the use of skills such as estimating, problem solving,

interpreting data, measuring, predicting and applying mathematics to life situations every day. One of the basic aims of teaching mathematics in schools is to inculcate the skill of quantification of experiences around the learners.

Mathematics helps in the process of decision-making through its application to real life situations in familiar as well as non-familiar situations. Contributes in the development of precision, rational and analytical thinking, reasoning, positive attitudes and aesthetic sense. Apart from being a distinct area of learning, it helps enormously in the development of other disciplines which involve analysis, reasoning and quantification of ideas. Study of mathematics also provides ample opportunities for making conjectures, testing building arguments about their validity and also in asking new questions.

The National Policy of education 1986 (NPE) has rightly visualized mathematics as the vehicle to train a child to think, reason, analyse and articulate logically. Since quantitative treatment, measurement, analysis and reasoning are being increasingly used. In many other subjects, the relevance of mathematics to the day to day problems in the child's environment and to the child's learning experience in other subject areas, cannot be over emphasized.

1.7 IMPORTANCE OF LANGUAGE IN MATHEMATICS ACHIEVEMENT

Language is an important feature of human life. Any body and everybody can define language through his or her everybody experience that, It is the basis of all communication." The intentional or conscious use of any sound, sign or symbol

to transmit a fact, an idea, a feeling or an emotion from one individual to another may be classified as language.

Languages play an important role in mathematics achievement of children. At the primary stage, the learning of mathematics is expected to lay the foundation for mathematical thinking about the numerical and spatial aspects of the objects and activities which the children of this stage are required to deal with. The learning experiences in mathematics at the primary stage should enable a child to master basic mathematical vocabulary, symbolism and computational skills related to numbers, money, time, measures, of Length, mass & volume, etc. & to apply them to everyday problems in their environment. Learning by doing is envisaged to be the main method of learning at this stage. In lower classes the emphasis on languages component is more in understanding mathematical problem. The child has to first comprehend the language in which the mathematical problem is expressed to solve it properly. Hence reading comprehensions becomes important in mathematics achievement.

In a multilingual country like India reading competence in a number of supplementary languages will be needed. Efficient reading in the first languages can make a person a good reader in other languages. However, unless languages curriculum are modified to teach languages on a scientific basis & reading as a skill is emphasized, the purpose for which languages are taught & learnt are not likely to be attained.

Except in some special cases, the majority learn the languages other than their first acquired languages in instructional situations. Some, because of the

special circumstances they are in, pick up a second language in the same way they learned their first language. It is but natural that even in these situations the process of learning the first language and the capacity that goes into the learning are made use of by the second language learners. In fact some scholars do not distinguish between the first and the second language acquisition in terms of the theoretical assumptions of the process involved, expect for the special circumstances in which the second language acquisition are extended to cover the second language learning. Hence, we have a variety of theories accounting for the acquisition of second languages based on their corresponding theory of the first language acquisition. These theories in their turn are part of the learning theories proposed for all the spheres of learning. The strategies adopted in the teaching of the second languages and the plan and quality of materials to which the second language learners are exposed also depend upon the assumptions as to how one acquires a second language.

How wonderful and how complex is the acquisition of languages. And how easily does the child acquire his first language. He is exposed to thousands of different sounds with variation in quality, pitch, length and loudness. But he restricts himself to the acquisition of the few, the significant sounds with their patterns of occurrence and to the acquisition of the language system, the process of word & sentence formation.

He does imitate and yet he is capable of producing something uttered never before. In a second language learning situation stages of first language acquisition such as babbling, single, double, and multiple word utterances.

What we have is a conscious effort or attempt in learning another language. The learner of a second language knows already another language and thus, he is in a position to communicate with appropriate content in majority of the cases, this problem is to express this content through the use of the norm of the structures of the second languages in an appropriate manner. An adult second language learner acquires a conscious knowledge of the rules of the second language with those of his native language. Further a child acquired his first language while attempting to use it. And adult learner his second language in a situation that may not fully match the situation of use. It is common knowledge that a child is more at ease in learning a second language than the adolescent or the adult.

1.8 READING COMPETENCE IN L₁ WILL HELP L₂ READING :

There have been speculations about what is possible and what is impossible for humans to learn with respect to the learning of second language. It is a known fact that humans can and do learn languages other than their own first language. Acquisition of the first language is usually taken for granted where as the learning of a second language is generally considered non-automatic, if not, artificial in some sense, perhaps for the reason that such acquisition takes place usually.

The perceptible difference in the quality of acquisition of second languages by children on the one hand and the adults on the other, so clearly revealed in the difficulty usually an adult faces in the acquisition of a good pronunciation has led to many speculations including neuropsychological ones. Some consider that such adult difficulties in the acquisition of a second language should be ascribed to neuropsychological constraints which set in with puberty.

Lenneberg (1967) finds at the age of puberty, the power of automatic acquisition from mere exposure to a language seems to disappear, even though a person can still learn to communicate in a foreign language. It is common experience in India and all over the world that many illiterate adults learn new languages, when they have to, through a mere exposure. This indicates that even the adults face essentially the same task that children do. They have to discover the structure of the language on the basis of spoken text material to which they are exposed. It is true that pronunciation difficulties may increase after puberty. As Braine (1971 a) suggests, any decline in language learning ability with age may be a slow one associated with the decline of other facilities of middle & old age. Penfield (Penfield 1958, and, Penfield and Roberts 1959) finds that children should be taught second language early to enable them to acquire a good accent. The children will retain this acquisition, hidden away in the brain, for use at a later stage.

According to Cummins (1929), instruction in L₁ (first language) and consequent proficiency in L₁ will provide a sound base for the development of proficiency in L₂. Cummins points out that the ability to communicate in social situation does not necessarily testify to the ability of dealing with cognitive tasks. Thus apart from the Basic Interpersonal Communication Skills (BICS), the school also demands Cognitive Academic Language Proficiency (CALP) which involves the ability to process linguistic information in a context reduced cognitive demanding situation.

Hence, the child must continue with the development of language skill in L₁ so that he develops the CALP required for learning a second language in school.

Hence minority children should be given their early education in their mother tongue or first language which will also give them the necessary social support.

Studies involving bilingual students whose L_1 was dominant and prestigious and in no danger of replacement by L_2 have produced positive effects of bilingualism - called the additive form of bilingualism.

1.9 MEDIUM OF INSTRUCTIONS AND MATHEMATICS ACHIEVEMENT

Every child's mother tongue or regional language has to be taught right from the first standard. In the cases where the children's home language is different from the school language or the regional language, gradual & smooth transition to the regional languages is to be effected within a reasonable time at the primary stage itself, in states where because of plurality of regional languages the official or the associate official language of India has been accepted as the state language or first language, it will have to be taught from the first standard. Provision for the teaching of mother tongue would be made for children from linguistic minorities wherever they are in adequate numbers.

As per the earlier curriculum framework (1988) "resources are available for teaching the second language in primary schools, the study of the second language may be introduced in a suitable grade/class at the primary stage". This suggestion may be held valid even now. On the other hand, in states/Union territories or organization where only the first language is studied at the primary stage, the study of the second language must be introduced in the first year of the upper primary stage however in this context the recommendation made by the **Kothari Commission** still remain the best piece of counsel;

This stage at which Hindi or English should be introduced on a compulsory basis as a second language and the period for which it should be taught will depend on local motivation and need & should be left to the discretion of each state.

During the first two years of the primary level, children have to be specially helped to acquire the basic skills of Listening, Speaking, Reading & Writing and thinking. Special attention must be paid to the process of standardization of pronunciation according to the norms. Similarly, the skill of good hand handwriting, correct spelling & right habit of silent reading with comprehension are also to be developed besides nurturing in the students the ability for creative self-expression.

At the upper primary stage, students competence in both the languages has to be strengthened further to enable them to acquire real life skills to be used in their future day to day life.

Thus, more and more aural and oral skills of language are to be emphasized at the primary stage, all the skills, i.e. **listening, speaking, reading and writing and thinking** are to be aimed at in a balanced manner by the end of the upper primary stage and slightly more attention is to be paid to the skills of reading and writing at the secondary stage.

The most crucial and ultimate task of language education at all these levels remains to prepare the learners to use the language effectively in either mode (spoken / written) whenever and wherever required in their day to day life situations of all sorts.

The policy of the state government, the mother tongue of the child is generally the medium of instruction, particularly at the primary and upper primary stages of school education. Survey reveals that about 92% schools at the primary stage and about 89% schools at the upper primary stage are imparting education through the mother tongue.

Acquisition of reading skills in the mother tongue and second language are dependent on several factors, which may be classified as personal and environmental. The teacher of second language i.e. English in our schools today do very little to improve matters in respect of most of the factors. However they are in a position to improve their classroom climate, at least as far as his / her own personality and method of teaching reading are concerned; they can also exercise effective control over some of the personal factors.

The language which is used as medium of instruction affects reading comprehension in that language. And in earlier stages of schooling, reading comprehension affects mathematics achievement of children. Hence the present study attempts to find out the relationship between reading comprehension and mathematics achievement of children as a result of different medium of instruction.

1.10 NEED & IMPORTANCE OF STUDY

Education plays a paramount role in education and talenting children. At different stages of education, English like other languages fulfils the functional (Communicative) literary (aesthetic) and cultural (interactive) needs of the learner.

Reading occupies a position of great importance in the scholastic / academic success of a child. The child must first learn to read so that he can later read to

learn. Literature on reading views it as a complex mental process involving perceptual, linguistic and conceptual operations. Reading is the process of constructing meaning from the printed text through a dynamic interaction among the reader, the text, and the context of the reading situation (Lerner, 1990).

Although different psychologists and researchers have defined reading according to their own perception, nearly all the definitions have focused on either of the following two aspects of reading – word decoding and comprehension. Thus reading consists of two processes such as word decoding or word identification and reading comprehension. Both these aspects of reading are not unrelated. The ability to comprehend well depends upon the ability to identify or recognize words well. However, successful word reading may or may not lead to good comprehension performance. Mathematics is an abstract subject and so it is all the more necessary that learning should begin with concrete situations.

At the primary classes, the learning of mathematics is expected to lay the foundation of mathematical thinking, so at an early stage more emphasize is laid on verbal communication. Hence it is assumed that if the Childs performance is better in reading comprehension skill then it is also better in problem solving ability. It means that better comprehension ability of the subject will lead to better mathematics performance.

Here, the purpose of the present study was to find out Grade V Children's Performance on reading comprehension and mathematics achievement in relation to the language of instruction or medium of instruction.

1.11 STATEMENT OF THE PROBLEM

“Relationship between reading comprehension and mathematics achievement of Grade V students of English and Hindi medium schools.”

1.12 OBJECTIVES OF THE STUDY

1. To compare the English Medium and Hindi Medium students on intelligence and socio economic status (SES).
2. To find out the reading comprehension of English Medium and Hindi Medium Students.
3. To find out the mathematics achievement of English Medium and Hindi Medium Students.
4. To find out the relationship between reading comprehension and mathematics achievement of English Medium Students.
5. To find out the relationship between reading comprehension and mathematics achievement of Hindi Medium Students.
6. To compare the reading comprehension of Boys and girls of Grade V.
7. To compare the mathematics achievement of Boys and Girls of Grade V.
8. To compare the intelligence of boys and girls of grade V.

1.13 HYPOTHESES OF THE STUDY

1. There is no significant difference in the English Medium and Hindi Medium students in intelligence and socio economic status (SES).
2. There is no significant difference in the reading comprehension of English Medium and Hindi Medium Students.
3. There is no significant difference in the Mathematics achievement of English Medium and Hindi Medium Students.

4. There is significant relationship between reading comprehension and mathematics achievement of English Medium students.
5. There is a significant relationship between reading comprehension and mathematics achievement of Hindi medium students.
6. There is no significant difference in intelligence of Boys and Girls of Grade V.
7. There is no significant difference in the reading comprehension of boys and girls of Grade V.
8. There is no significant difference in the mathematics achievement of Boys and Girls of Grade V.

1.14 OPERATIONAL DEFINITIONS OF THE TERMS USED

1. **Reading Comprehension** : Reading is essentially a language related process of communication. Comprehension is the ultimate goal of all readings. Comprehension in reading is generally defined as getting meaning from print.
2. **Mother Tongue / Mother Language (L₁)** : The first language to which people are exposed by parents and relations and which they learn to speak first.
3. **Second Language (L₂)** : A language which is not the mother tongue of the speaker, but which is a language of the country in which they live and which they use regularly.
4. **Intelligence** : Intelligence is the capacity of rational, original, creative and constructive thinking, for problem solving and flexible adjustment in the environment, and capacity to form associations as well as to make impulse focal at their early, unfinished stage of formation; Kulshreshtha, 1977).

5. **Socio-Economic Status** : SES is compiled from indexes such as type of occupation, years of education, size of income, quality of housing and desirability of neighborhood, social class usually is defined in a more personal way that expresses local prestige and respectability.
6. **English Medium** : English Medium is defined as those schools where medium of instruction is English.
7. **Hindi Medium** : Hindi Medium school is defined as those schools where instructions are given in Hindi.

1.15 DELIMITATION

Every research work have some delimitations and the delimitations of this study are :-

1. The study have been restricted to public / private schools of Bhopal city.
2. The sample of this study was confined to 80 students of Bhopal City.
3. Students continuing in the same school i.e. from Grade IV to Grade V were included in the sample.
4. The study was confined to only those students whose mother tongue [First language (L₁)] was Hindi.

The study was limited to only reading comprehension skill of language. Other skills like listening speaking and writing were not taken into consideration.